



Newburyport Math Curriculum Framework Guide

Grade 3 Focus Areas

In grade 3, the focus of student learning is on four areas:

1. Developing understanding of multiplication and division and strategies for multiplication and division within 100.
2. Developing understanding of fractions, especially unit fractions.
3. Developing understanding of the structure of rectangular arrays and of area
4. Describing and analyzing two-dimensional shapes.

Mathematical Practice Standards

These 8 practice standards describe ways in which students do or approach math. They are the foundation for mathematical thinking and help to develop a more advanced understanding. These standards are the habits & strategies mathematically proficient students have and can be applied in everyday life.

1. Makes sense of problems and persevere in solving them.
2. Reasons abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of structure
8. Look for and express regularity in repeated reasoning

Grade 3 Overview

Operations & Algebraic Thinking

- Represent and solve problems involving multiplication and division.
- Understand properties of multiplication and the relationship between multiplication and division.
- Multiply and divide within 100.
- Solve problems involving the four operations, and identify and explain patterns in arithmetic.

Number & Operations in Base Ten

- Use place value understanding and properties of operations to perform multi-digit arithmetic.

Number & Operations-Fractions

- Develop understanding of fractions as a number.

Measurement & Data

- Solve problems involving measurement and estimation of time, liquid volumes, and masses of objects.
- Represent and interpret data.
- Understand concepts of area and relate area to multiplication and addition.
- Recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

Geometry

- Reason with shapes and their attributes.

Operations & Algebraic Thinking

Represent and solve problems involving multiplication and division.

- Interpret products of whole numbers as the total number of objects in two or more groups.
- Interpret whole-number quotients of whole numbers as the number of objects in each share or as a number of shares.
- Use multiplication and division within 100 to solve word problems.
- Determine the unknown whole number in a multiplication or division equation relating three whole numbers.

Understand properties of multiplication and the relationship between multiplication and division.

- Apply properties of operations to multiply.
- Understand division as an unknown-factor problem.

Multiply and divide within 100.

- Fluently multiply and divide within 100 using strategies.

Solve problems involving the four operations, and identify and explain patterns in arithmetic.

- Solve two-step word problems using the four operations. Use equations with a letter standing for the unknown quantity.
- Identify arithmetic patterns and explain them using properties of operations.

Number & Operations in Base Ten

Use place value understanding and properties of operations to perform multi-digit arithmetic.

- Use place value understanding to round whole numbers to the nearest 10 or 100.
- Fluently add and subtract within 1,000 using strategies and algorithms.
- Multiply one-digit whole numbers by multiples of 10 (from 10-90) using strategies.

Number & Operations-Fractions

Develop understanding of fractions as a number.

- Understand a fraction $\frac{1}{b}$ as the quantity formed by 1 part when a whole is partitioned into b equal parts.
- Understand a fraction as a number on the number line; represent fractions on a number line.
- Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.

Measurement & Data

Solve problems involving measurement and estimation of time, liquid volumes, and masses of objects.

- Tell and write time to the nearest minute and measure time intervals in minutes.
- Solve word problems involving addition and subtraction of time intervals.
- Measure and estimate liquid volumes and masses of objects using standard metric units of grams, kilograms, and liters.
- Add, subtract, multiply, or divide to solve one-step word problems involving mass or volumes with the same metric unit.

Represent and interpret data.

- Draw a scaled picture graph and scaled bar graph to represent a data set with several categories. Solve “how many more” and “how many less” problems using the information from the graphs.
- Generate measurement data by measuring lengths of objects using rulers. Record and show the data by making a line plot.

Understand concepts of area and relate area to multiplication and addition.

- Recognize area as an attribute of plane figures and understand concepts of area measurement.
- Measure areas by counting unit squares (square cm, square in., square m, square ft., and non-standard units).
- Relate area to the operations of multiplication and addition.

Recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

- Solve real-world and mathematical problems involving perimeters of polygons and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

Geometry

Reason with shapes and their attributes.

- Understand that shapes in different categories may share attributes and that the shared attributes can define a larger category.
- Compare and classify shapes by their sides and angles.
- Partition shapes into parts with equal areas. Express each area as a unit fraction of the whole.